CALIFORNIA ACADEMY OF SCIENCES

ANNUAL REPORT

1961

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O. RICHARD NORTON, *Assistant Curator*
CLAY P. BUTLER, *Research Associate*

Botany
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ELIZABETH MCCLINTOCK, *Associate Curator*
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EDWARD L. KESSEL, *Associate Curator*
HUGH B. LEECH, *Associate Curator*
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KENNETH E. FRICK, *Research Associate*
HARRIET E. FRIZZELL, *Research Associate*
J. LINSLEY GRESSITT, *Research Associate*
E. GORTON LINSLEY, *Research Associate*
ROBERT L. USINGER, *Research Associate*
FRANCIS X. WILLIAMS, *Research Associate*

Exhibits
MEARL F. CARSON, *Curator*
TOSHIO ASAEDA, *Associate Curator*
ANSEL E. ADAMS, *Research Associate*

Gem Minerals
CHARLES W. CHESTERMAN, *Honorary Curator*

Geology
G DALLAS HANNA, *Curator*
LEO G. HERTLEIN, *Associate Curator*
CLIFFORD C. CHURCH, *Research Associate*
ALAN J. GALLOWAY, *Research Associate*

Herpetology
ALAN E. LEVITON, *Assistant Curator (in charge)*
GEORGE S. MYERS, *Research Associate*
LAWRENCE SWAN, *Research Associate*

Horology
WILLIAM BARCLAY STEPHENS, *Honorary Curator*

Ichthyology
W. I. FOLLETT, *Curator*
LILLIAN DEMPSTER, *Assistant Curator*

Instrument Shop
ALVIN C. GUNDRED, *Superintendent*

Invertebrate Zoology
ROBERT C. MILLER, *Curator*
ALLYN G. SMITH, *Associate Curator*
FRANCIS P. FILICE, *Research Associate*
JOEL W. HEDGPETH, *Research Associate*
A. MYRA KEEN, *Research Associate*

Library
VERONICA J. SEXTON, *Librarian*
IGNATIUS MCGUIRE, *Associate Librarian*

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ROBERT I. BOWMAN, *Research Associate*
ANATOLE S. LOUKASHKIN, *Research Associate*
DORCAS E. MACCLINTOCK, *Research Associate*
J. DAN WEBSTER, *Research Associate*

Pacific Discovery
DON GREAME KELLEY, *Editor*

Public Information
HAL RICHARDSON

Scientific Publications
EDWARD L. KESSEL, *Editor*

Student Section and Film Library
DOLLA C. WEAVER, *Supervisor*

Television
BENJAMIN P. DRAPER, *Executive Producer*
ERNEST R. ROOK, *Associate Producer*

* Owing to limitations of space, departmental assistants have not been included.
† On leave.

TO THE MEMBERS AND FRIENDS OF THE CALIFORNIA ACADEMY OF SCIENCES

The 108th year of the California Academy of Sciences was another year marked by devoted effort by everyone—Staff and Trustees alike—in carrying forward its scientific objectives and at the same time the previously reported program aimed at strengthening the Academy's financial position and broadening the base of its public and private support.

The Academy's work and its intrinsic value to society obtained broader recognition this year than ever before. A very bright spot was the largest numerical and percentage increase in membership in the entire history of the Academy, bringing the total membership to 2,937. In perspective—1861's 27% gain brings the two-year cumulative increase to over 50%—exactly 1,000 more members than in June of 1959. As an indication of community appreciation and response and support, this is a statistic of very particular importance—a good omen for the future.

Financially there also has been progress—but not enough. The operating deficit resulting primarily from the Museum activities was reduced from $98,252 in 1960 to $59,186 in 1961. A major part of this reduction was due to an increase in support of Museum activities by the City of San Francisco in the amount of $18,100.

For the third year, a special committee was formed under the chairmanship of Trustee Wilson Meyer to raise funds to meet the financial need created by this operating deficit. Corporations, foundations and friends responded generously in amounts larger than might normally be expected, in a similar manner as they had during the two previous years. Our thanks go to them for covering the major portion of the deficit, thereby making it possible to carry on the Academy's programs until a more permanent solution is achieved. This, however, is not a sound financial basis upon which to operate. Nor can we expect to receive "emergency" aid year after year. Some of the support we received is what that name implies.

Accordingly the trustees continued to focus their attention on our primary problem—that of restoring a sound financial base for the Academy and of eliminating the operating deficit. After thoughtful consideration, the Trustees drew up a statement outlining three alternate courses or solutions which were then discussed with the City administration. These alternatives are:

First, the City to accept full responsibility for the support of all public service activities and to provide the required monies by budget appropriation.

Second, to amend Charter Section 52 to allow the Academy to charge admission. In addition to amending Charter Section 52, it would be necessary to obtain court approval to allow charging admission to Steinhart Aquarium. Our counsel, after having studied this proposal, believes that this approval should be obtainable since in the present rebuilding of the Aquarium there will have, in fact, been built what is essentially a new aquarium, using only the remaining shell of the original Steinhart Aquarium.

Third, the remaining alternative is to balance our budget by a drastic reduction in public services. This would involve the closing of the public exhibit halls for a very substantial part of each week since lesser measures would not accomplish the required savings. In view of last year's attendance of over 2,500,000 people, this is not a thinkable alternative.

It is to be noted that it is the expressed policy and desire of the Trustees to provide for the operation of the Academy's scientific departments and other scientific activities out of income received from its endowment, its membership and other private sources. No monies for these purposes are being sought from the City.

These proposals and our problems have received most sympathetic consideration from the City administration. The Board of Supervisors responded in a very tangible manner by granting a further increase in budget appropriation of $30,000 towards support of public service activities for the coming fiscal year, 1961–62. For the long term we have been encouraged to seek relief by the second course, and on August 4th a formal request was presented to the Board of Supervisors to amend Charter Section 52 to permit charging admission. To assure the availability of the scientific knowledge accumulated in the Academy to all, it is the desire of the Trustees to provide free admission to school classes at all times, and to everyone during certain limited periods of each week.

I regret to report the death of Dr. William S. W. Kew, who served well since 1955 as a member of the Science Council and subsequently as a Trustee. To fill this vacancy, in July Mr. Francis Hutchens, whose advice and guidance as counsel have for many years been of great assistance to the Trustees, was elected to the Board.

As this is written, word comes of the death of Colonel George Stimmel, who became a member of the Board in 1955 and was elected treasurer in April 1961. Col. Stimmel had given unstintingly of his talent in analyzing and making more clearly understandable the complex financial accounts of the Academy.

Since, out of modesty, it will not be included in his own report, it is a pleasure to record the honor accorded to Dr. Robert C. Miller, our Director, by his election to the presidency of the Academy Conference, the organization of 47 Academies of Science in the United States and Canada.

In conclusion, let me reassure you that substantial progress is being made, and it is with a feeling of appreciation that in behalf of the Trustees, I can in summary report:

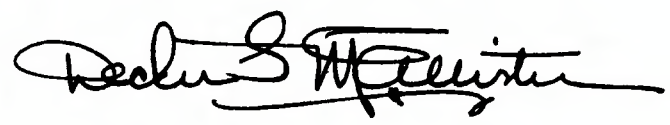
— The biggest membership growth in the Academy's history

— with thanks, recognition of the Academy's public services by the City of San Francisco in the form of increasing financial support

— and last, but far from least, continuing substantial financial assistance from corporations and friends to tide the Academy over this difficult period.

These positive responses from all important sectors of the community will now encourage the Trustees and Staff to develop plans for a positive program of continuing growth and increasing contribution to the scientific and cultural values of the community.

Respectfully submitted,



San Francisco, California
September 6, 1961

REPORT OF THE DIRECTOR

The year ending June 30, 1961, has been a period of substantial growth and progress. Membership has increased, public attendance has increased, existing research programs have been expanded, new research programs have been initiated. In an era of unprecedented technological advancement, man still looks with undiminished curiosity to the future. With science occupying so much of human thinking, the Academy provides a wealth of information to the general public, provides a stimulus to youth to consider science as a career, and through its own research program advances the frontiers of knowledge.

MEMBERSHIP

Membership in the Academy increased during the year by 620 persons to an all-time high of 2,937. One important measure of the success of the Academy's program is the active interest and support of its members. As of June 30, 1961, there were the following numbers of members in the various categories:

Classification of Membership	*Number of Members*
Regular Members	1,573
Family Members	543
Contributing Members	84
Subscribing Members	10
Annual Sponsors	35
Life Members	223
Honorary Members	25
Fellows	218
Patrons	75
Benefactors	2
Associate Members	22
Special Observers	20
Corresponding Members	8
Student Members	99
TOTAL	2,937

ATTENDANCE

Interest in the Academy's program of education through public exhibits continued to grow, as indicated by an attendance that exceeded all previous records. The figures are:

North American Hall	534,458
Hall of Science	755,238
Steinhart Aquarium	1,354,876
TOTAL	2,644,572

This exceeds the previous year's total by a little more than forty-six thousand. Of the total attendance, 114,222 came in special groups, mostly school and college classes accompanied by their teachers.

BUILDING PROGRAM

A valued asset is a rare book room that was completed during the year. Funds were provided by the Lucie Stern Foundation, and the room will be known as the Lucie Stern Room. Of special construction to provide maximum safety and also humidity control, this room will give protection through the years to the Academy's oldest and rarest books.

Reconstruction of the Steinhart Aquarium under a $1,575,000 bond issue voted by the citizens of San Francisco has proceeded through the year, with such difficulties as might be anticipated trying to remodel a building that is full of both people and fish. There has been inconvenience to the public and staff, and no doubt to the contractor. The fish have not been heard from. Unfortunately the inconvenience promises to continue many months into the future before the work can be completed.

ACADEMY MASTER PLAN

During the year a Master Plan was drawn up by a committee appointed by the Trustees. The committee undertook to project the Academy's building needs twenty-five years into the future. The plan includes a Hall of Living Tropical Fishes to be underwritten by the San Francisco Aquarium Society. It also includes a Hall of Earth Sciences, a Hall of Man, and several other needed structures, none of which have been underwritten by anybody. Men of good will please note!

EDUCATIONAL ACTIVITIES

Exhibits

The Academy maintains an active program of changing exhibits, and from time to time makes additions to its permanent exhibits.

Among permanent exhibits, an African rhinoceros and a hippopotamus, gifts of Dean Witter, were installed in a newly constructed display case in Simson African Hall, against a striking background of reproductions of Neolithic rock-paintings from the Sahara.

A flower stand for the display of living wildflowers was installed in the Alice Eastwood Hall of Botany, a gift of the Marin Garden Club. A decorative bench, a gift of Mrs. Leslie L. Armstrong, was also installed in the Hall of Botany for the benefit of flower lovers who want to sit and contemplate.

Thirty-two temporary exhibits were installed during the year, a surprising accomplishment for our small exhibits staff. Visitors to the Academy are practically assured of seeing something new on every visit. In addition to other duties, the Department of Exhibits prepared an exhibit for the Tenth Pacific Science Congress in Honolulu, featuring the Academy's research in the Galapagos Islands; installed Academy-sponsored exhibits at the Marin Art and Garden Fair and at the Seventh Biennial Wilderness Conference; and performed miscellaneous services too numerous to mention.

Planetarium

The Morrison Planetarium continues to be a major educational attraction. It is one of the Academy's finest facilities for public instruction. Total attendance during the year is as follows:

No. of Shows	*Type of Show*	*Attendance*		
		Adults	*Children*	*Total*
768	Regular	65,473	35,916	101,389
171	Student	.....	54,769	54,769
939		65,473	90,685	156,158

While there was a small increase this year over last in regular show attendance, the increase for special student shows of nearly 1900 is notable. In fact, the May attendance of about 10,700 students topped all previous monthly records since the Planetarium opened. Further evidence of public interest in the Planetarium and the staff work associated with it has been the answering of more than 1000 written requests for information of an astronomical nature, the 2000 or more letters relating to student shows, together with uncounted thousands of telephone requests.

The Planetarium staff held nine monthly meetings of the Astronomy Section during the year, conducted courses in "Popular Astronomy" and "Celestial Navigation," handled six radio and TV appearances, gave 17 talks and lectures to clubs and other organizations, prepared a new Planetarium Booklet "Telescopes and Their Uses" (No. 11 of the series), besides writing several popular and scientific articles, adding new auxiliary equipment to the Planetarium

projector and its sound system, and cooperating with the Academy's research project on the celestial navigation of migratory birds, which depends on the Planetarium for some phases of this work.

Television

The Academy's popular "Science in Action" series completed its eleventh year on the air under the sponsorship of Wells Fargo Bank American Trust Company, with Benjamin Draper, Executive Producer, and Dr. Earl S. Herald, Curator of Steinhart Aquarium, as Program Host. In addition to Bay Area coverage on Station KRON (TV), 26 programs of the series were televised this year at Sacramento over Station KVIE, and the program was sponsored in Honolulu for the fourth year by the Hawaiian Telephone Company. "Science in Action" is now available to our armed forces overseas. The program continued to gather new honors this year including a third Ohio State Award and a Favorite Program award from the San Francisco *Examiner.*

Student Section

Our Student Section continues to grow and now numbers 99 members, each working on one or more scientific projects under a full-time Supervisor, Mrs. Dolla C. Weaver. It is now organized into departments, following the Academy set-up, issues "Student Discovery," a mimeographed publication, and published four "Student Occasional Papers" during the year by members working at an advanced level. Local field trips, together with several more extended trips were arranged this year using a new carryall for transportation. The Student Section is working diligently toward the Academy's objective of training junior scientists and providing the personnel and the facilities for their work. The response is gratifying, as pointed up this year by a grant to one student member from the American Association for the Advancement of Science for a special research study of the flora of the Tiburon Peninsula under the supervision of John Thomas Howell, the Academy's Curator of Botany.

Requests for Information

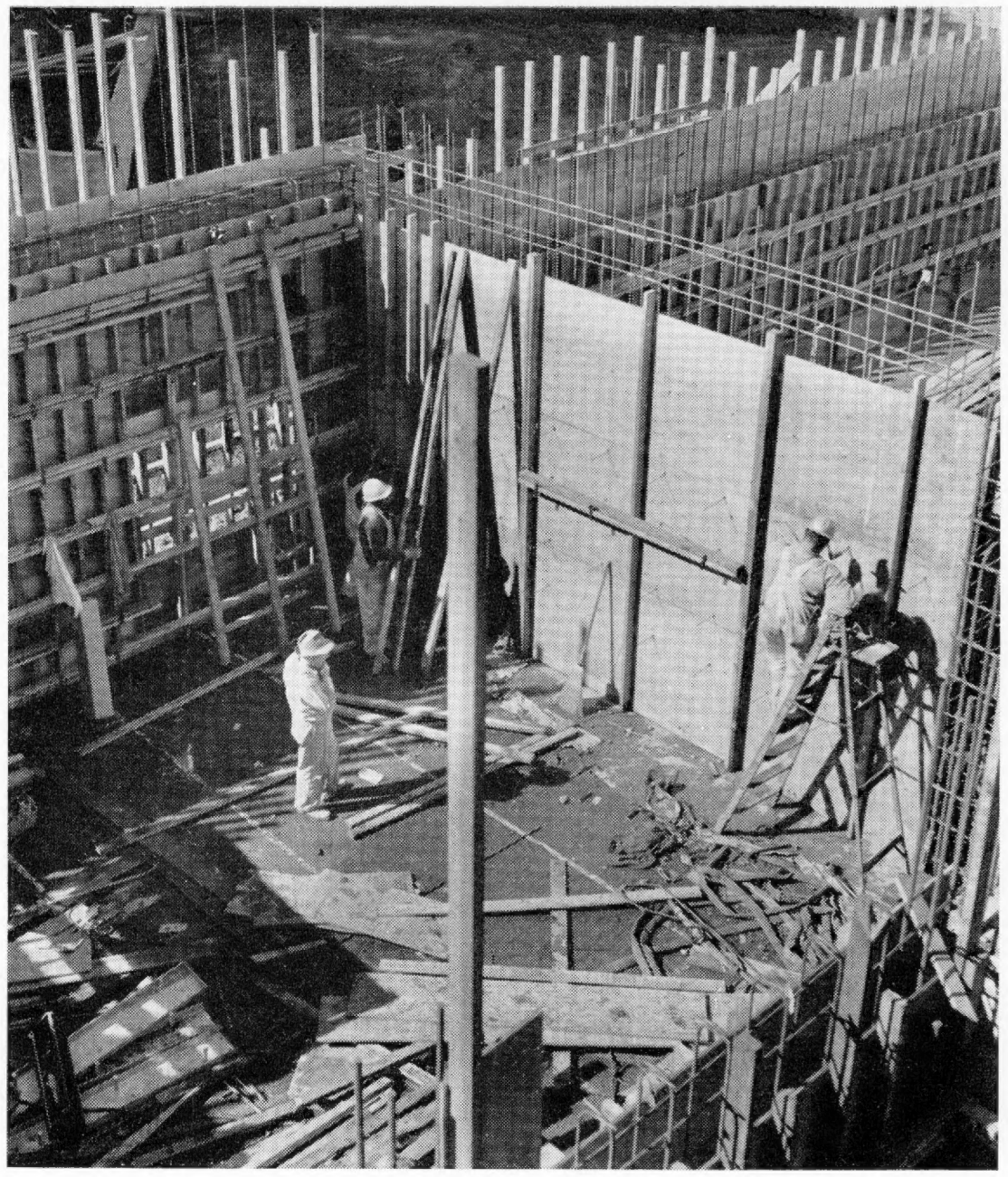
The Academy receives thousands of inquiries each year either personally, by letter or by telephone. Many are from students asking for information, help or advice on natural history subjects. We believe that all requests for scientific information should be answered in the best way possible. The Student Section Supervisor is now handling most of these inquiries. Those that require a reply from an expert are referred to research department staffs.

RESEARCH ACTIVITIES

Publications

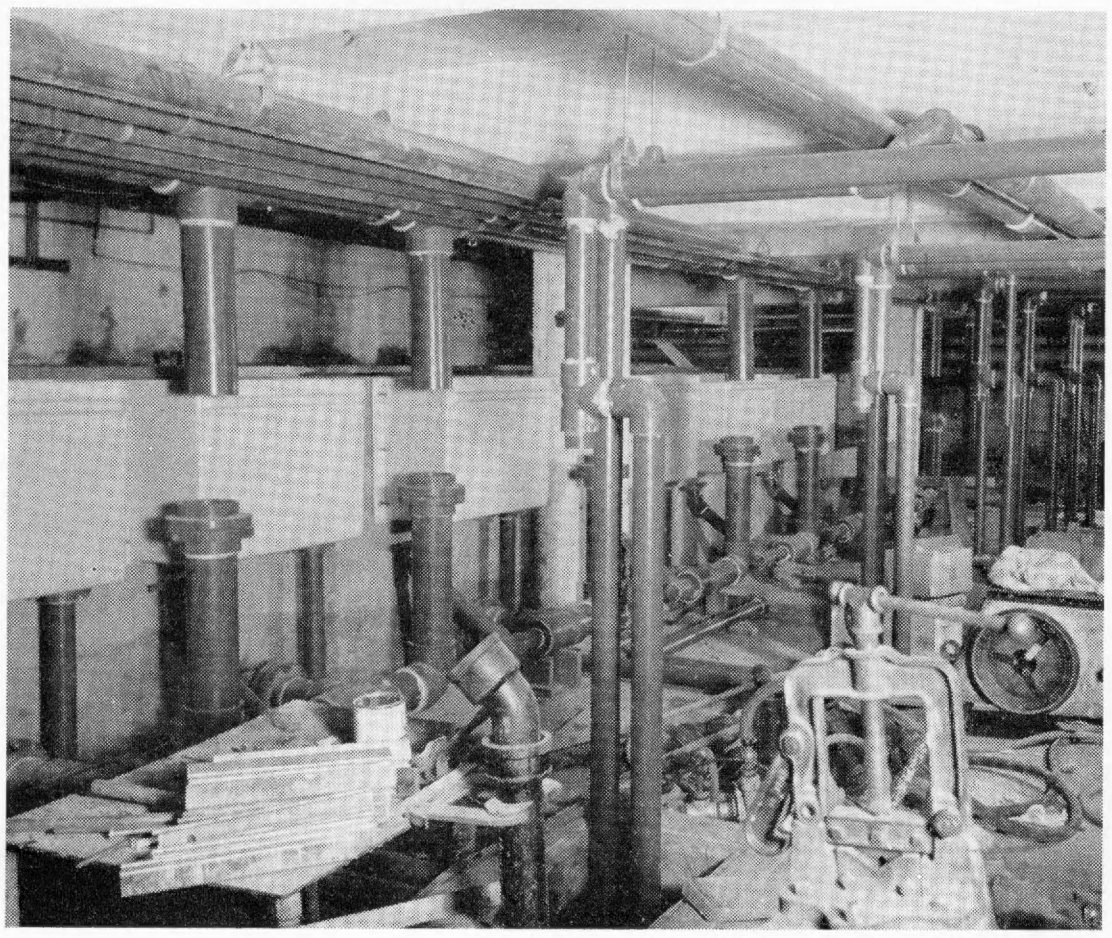
Results of scientific research appear in the Academy's Proceedings and Occasional Papers. During the year a total of eleven numbers of the Proceedings and four Occasional Papers were published. Copies are sent to about 800 domestic and foreign scientific institutions and libraries throughout the world in exchange for similar scientific publications.

Staff members of the Academy also have published articles in various scientific journals devoted to their specific fields of research. About 60 such articles, prepared individually or in collaboration with others by 25 staff members appeared during the year. Principal among this year's contributions is a 400-page college textbook *Vertebrate Biology* by Dr. Robert T. Orr, Curator of Birds and Mammals; a handsome volume *Living Fishes of the World* by Dr. Earl S. Herald, Curator of Steinhart Aquarium; and a section on the Amphineura (chitons and solenogastres) by Allyn G. Smith, Associate



The roof of the 100,000 gallon reservoir having been completed, the workmen on the Steinhart Aquarium rehabilitation start building the sidewalls of the garage which is situated overhead. The new porpoise tank is visible on the right.

A small portion of the 10 miles of plastic pipe used in the rehabilitation of Steinhart Aquarium. This section is in the new pumping plant.



Curator, Department of Invertebrate Zoology, contained in the *Treatise on Invertebrate Paleontology*, Part I, Mollusca, Vol. 1, published by the Geological Society of America.

Other Academy publications include the bi-monthly magazine *Pacific Discovery*, edited during the year by Don Greame Kelley, and the *Newsletter*, written by Hal Richardson, which is mailed monthly to members.

Color Printing Process

Work is continuing on the project of printing scientific illustrations in color under the direction of Dr. G Dallas Hanna. Although this work is still in the applied research stage, considerable improvement has been made during the year. Color plates appearing in recently published Academy Proceedings and Occasional Papers have resulted in many inquiries from scientific institutions and publications. Until staff rearrangements are made it will be necessary for the Academy, with some possible exceptions, to limit the production of color plates to its own publications.

Departmental Programs

Aquatic Biology

This department, under the direction of its Curator, Dr. Earl S. Herald, obviously has been severely hampered by the reconstruction of Steinhart Aquarium. In spite of this, with the accompanying need to close down part of the display tanks, over 180 new fishes, amphibians, and reptiles as well as numerous marine invertebrates were received and placed on exhibit. At the end of the year the Aquarium had on display over 3000 living animals, comprising nearly 300 separate species.

The Academy has a constant stream of visitors, many of whom were outstanding scientists, from all over the world every year; 1960–61 was no exception. Among the more prominent of these was His Royal Highness Akihito, Crown Prince of Japan, an accomplished ichthyologist, who visited the Aquarium in September while in San Francisco.

Biological research during the year by Robert P. Dempster, Associate Curator, included collecting data on sharks, bio-assay work on the toxicity of materials, and studying various diseases and parasites to which both fish and reptiles are subject.

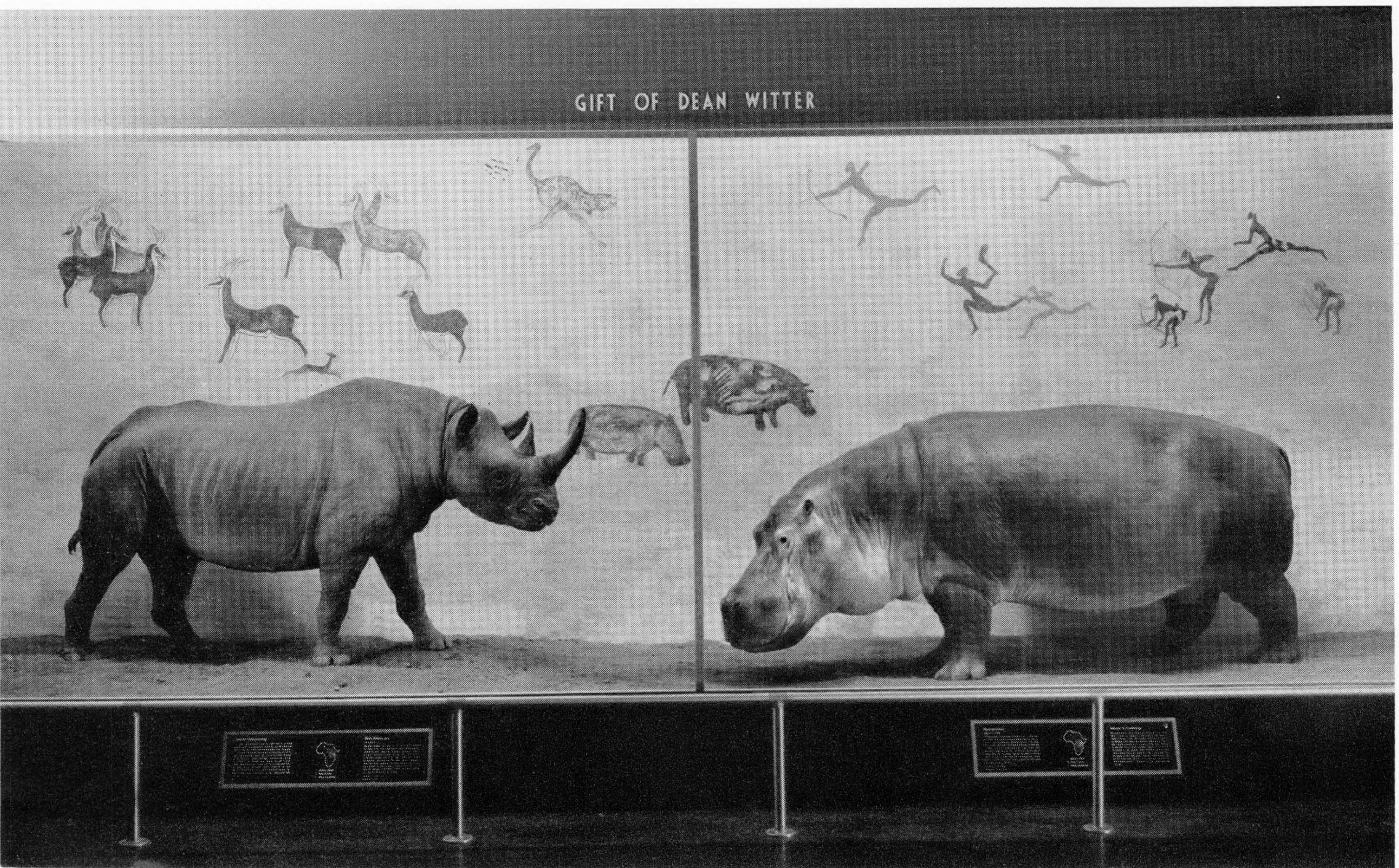
Astronomy

Planetarium activities have already been mentioned. To these should be added a research project, started this year by Assistant Curator O. Richard Norton, on the classification and analysis of meteorites; also the design and fabrication in the Academy's Instrument Shop of three Foucault Pendulums for other institutions, and the modification of a telescope for Contra Costa Junior College, under the direction of Curator George W. Bunton.

Botany

John Thomas Howell, Curator, reports the receipt of 12,594 accessions during the year. The number of mounted specimens in the herbarium now totals more than 425,000. New additions include important gifts and accessions from many sources. One of these consists of the Grace W. Hall collection of marine algae comprising 1200 named and mounted specimens. Another consists of more than 1400 specimens from Baja California collected during field expeditions sponsored by the Academy in cooperation with the Belvedere Scientific Fund. A third amounts to 2000 specimens from the Silveus Grass Herbarium, University of Texas, representing a fine addition to the department's already large and important collection of western grasses.

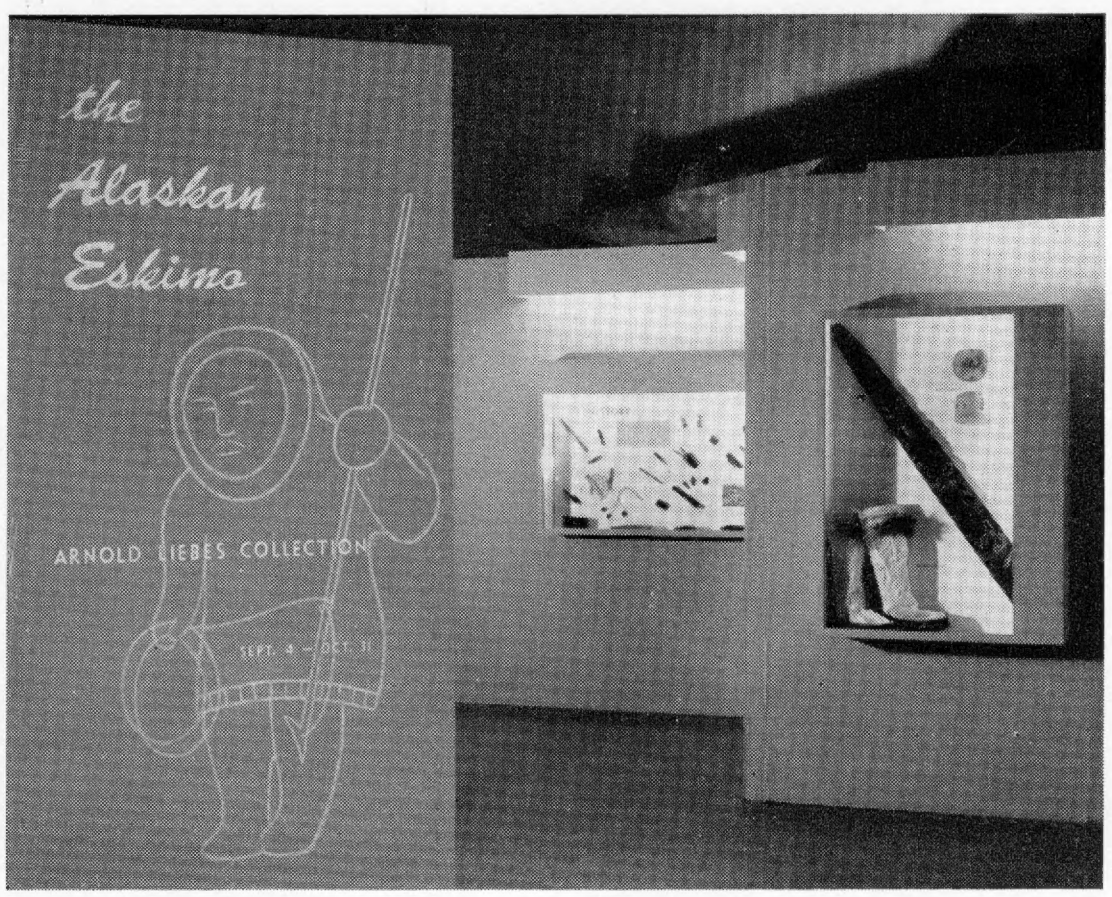
A gift of Dean Witter, the hippopotamus and rhinoceros exhibit with a background of Saharan rock paintings is the latest permanent addition to Simson African Hall.



Dr. Elizabeth McClintock, Associate Curator, among many other department duties, has continued her work on the project of compiling a list of the woody ornamental plants being sold in nurseries in California. This project is undertaken at the request of the State Department of Agriculture.

Entomology

This department, under the direction of Dr. Edward S. Ross, Curator, and Hugh B. Leech, Associate Curator, received nearly 139,000 new specimens during the year; 88,000 of these have been mounted and labeled. With the help of funds received from the National Science Foundation, a number of assistants have been added to this department's staff with the result that a dent of considerable



The gift of the Arnold Liebes Collection of Alaskan artifacts was a valuable addition to the Academy's ethnological collection and resulted in a highly popular temporary exhibit.

proportions has been made on the backlog of material from previous years. One hundred and fifty new cases for the storage of specimens were constructed, also with funds provided by the National Science Foundation.

Dr. Edward L. Kessel, Associate Curator, in addition to duties as the Academy's editor of technical publications, made many trips in his search for flat-footed flies (Platypezidae). Dr. C. Don MacNeill, Assistant Curator, worked on the Lepidoptera section of the department's collection, assisted Dr. Ross with the preparations for the latter's Asian Expedition, and still found time for research work on the Hesperiidae (butterflies commonly known as "skippers").

Geology

According to Dr. G Dallas Hanna, Curator, the largest and most important acquisition to the department during the year was the gift of a world-wide shell collection by Andrew Sorensen, of Pacific Grove, California. The department's collection of type specimens now numbers 12,362, with the addition of 264 during the year. Dr. Leo G. Hertlein, Associate Curator, continued work on his portion of a monograph on the fossil bivalves of the San Diego Pliocene formation. Mr. Charles W. Chesterman represented the Academy at the International Geological Congress in Copenhagen in August and continued the work of classifying and arranging the extensive Vonsen Collection of Minerals. Mr. Alan J. Galloway continued his work on the geology of the San Andreas Fault and prepared a guidebook dealing with the geology of the Point Reyes Peninsula to be issued by the American Association of Petroleum Geologists.

Herpetology

Dr. Alan E. Leviton, Assistant Curator in charge of reptiles and amphibians, reported the acquisition of 1,833 specimens, most of which were obtained by gift. Several important items of equipment were added during the year, including a stereoscopic microscope and certain instruments necessary for blood protein studies. Because of funds made available through the National Science Foundation, the services of Dr. Benjamin H. Banta were secured for curatorial and research assistance. The Assistant Curator attended a number of scientific meetings during the year and was elected a Fellow of the Academy of Zoology at Agra, India.

Ichthyology

This department added about 1400 specimens to its collection during 1960–61, including a number of rare species of fishes. W. I. Follett, Curator, in addition to making 32 collecting trips, attended a number of meetings of scientific societies and completed a term as President of the Society of Systematic Zoology. Research work on the collection was continued by the Curator and by Lillian Dempster, the Assistant Curator, on adding to the collection of color slides of various fishes as well as obtaining many radiographs with the department's X-ray equipment.

Invertebrate Zoology

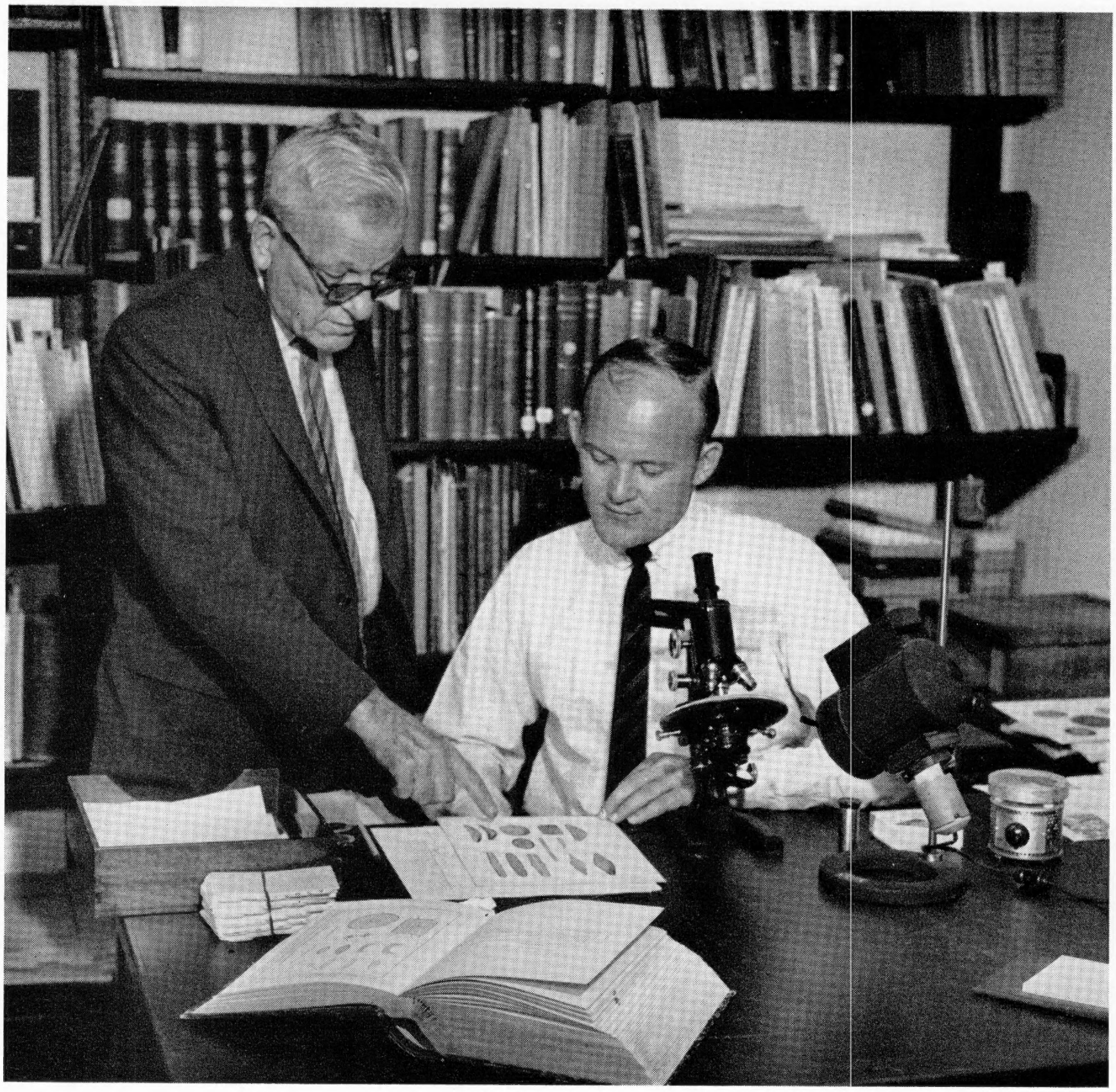
Since the Curator, Dr. Robert C. Miller, is primarily occupied with his responsibility as Director of the Academy, the work of this newest research department devolves principally upon Allyn G. Smith, the Associate Curator. The collection of preserved invertebrates consists of around 5000 jars containing approximately 50,000 specimens. Considerable progress was made during the year toward installing this collection in new glass containers with standard labels. The department has had some volunteer assistance on this work from a graduate student at San Francisco State College majoring in marine biology.

Ornithology and Mammalogy

Approximately six hundred and fifty specimens of birds and mammals were added to the department during the year. The most important collection was the result of field work carried on in the state of Morelos, Mexico, by J. Stuart Rowley. The Curator, Dr. Robert T. Orr, continued research on Mexican swifts as well as several other projects and began a population and behavioral study on seals and sea lions occurring along the central California coast. He attended a number of scientific meetings, including that of the American Ornithologists' Union at the University of Michigan in August and of the American Society of Mammalogists at the University of Illinois in June.

Field Expeditions

The Academy continued its Baja California research program this year, again with generous financial support from the Belvedere Scientific Fund. In August, and again in October, Academy members flew to La Paz in search of liv-



Walter W. Wornardt (right) working on a National Science Foundation Grant, under the direction of Dr. G Dallas Hanna (left), for the investigation of fossil diatoms of the late Tertiary of California.

ing examples of a curious bivalved-gastropod—a mollusk with a snail's body and a clam's shell. This trip proved to be highly successful with many living individuals found, representing a form new to science. In December another field party spent a week collecting marine organisms on Espíritu Santo Island and did some dredging. This party was joined by two marine biologists from the University of Mexico. Another field party spent three weeks in March and April in the region of the Vizcaino Desert, driving as far south as Punta Abreojos. Important collections of plants, reptiles and amphibians, land and fresh-water shells, and insects were made by this party, headed by Dr. Ira L. Wiggins.

Dr. Edward S. Ross, Curator of Entomology, with his son Clark, Dr. Paul Arnaud, David Renz and Mr. H. Vannoy Davis, made a field trip into northern Mexico in August, 1960, to collect embiids, or web spinners, and other insects. In June, 1961, Dr. Ross left for an extended expedition with a specially equipped vehicle of his own design for India, Pakistan, Ceylon and the Malay Peninsula, where he will continue his search for embiids. He is accompanied by Mrs. Ross, their son Clark, and David Cavagnaro.

Dr. G Dallas Hanna and Mr. Charles W. Chesterman of the Geology Department made two field trips into Modoc County during the year for the collection of minerals and fossils. In addition, Dr. and Mrs. Hanna spent a month in Alaska, including ten days on the Pribilof Islands collecting Pliocene and Recent mollusks. Drs. Leviton and Banta of the Herpetology Department were members of the Vizcaino Desert Expedition sponsored by the Belvedere Scientific Fund, as was Mr. Allyn G. Smith of the Department of Invertebrate Zoology. Dr. Robert C. Miller, the Director, collected marine invertebrates with the Espíritu Santo Island expedition in December.

Besides participating in major field trips and expeditions, members of the Academy's research staff undertake many local collecting trips for specimens relating to their specialties. For this they utilize week-ends and vacation periods. The Academy's collections are thus continually being augmented with valuable and needed material for research. As an example this year, one staff member added specimens of insects, beetles and land and fresh-water shells from the High Atlas Mountains of Morocco in North Africa.

Grants for Special Research Projects

The Academy has received eight new grants providing support for research work during 1961–62. These include the following:

Granting Agency	*Department*	*Purpose of Grant*
National Science Foundation	Entomology	Completion of a catalogue of Diptera of the family Tachinidae
National Geographic Society	"	Partial financing for Dr. Ross' Asian Expedition
National Science Foundation	Geology	Illustrations for a monograph on the marine Pliocene mollusks of San Diego County
National Science Foundation	Herpetology	Modernization of scientific collections and completion of research in progress
American Philosophical Society	"	Travel to eastern United States museums to study Philippine snakes
American Philosophical Society	"	Travel to eastern United States museums to study lizards of the Great Basin
Belvedere Scientific Fund	Academy and Stanford University	Preliminary investigations on the biota of Vizcaino Desert, Baja California
United States Air Force	Academy	Celestial navigation by migrating birds

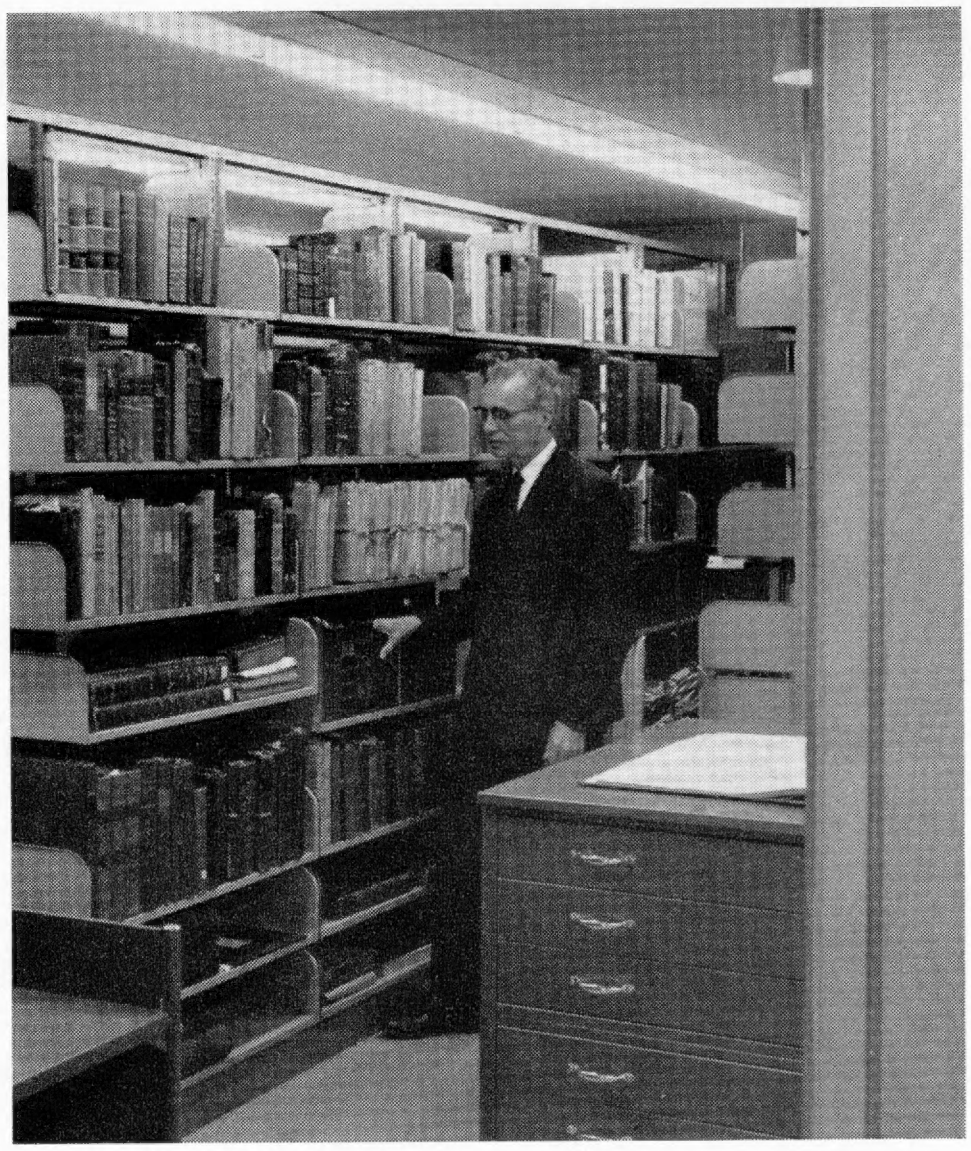
In connection with this last project, the grant was renewed this year because results have been of sufficient promise to warrant its continuation on an expanded basis. In consequence, Dr. Franz Sauer, who pioneered in the field of celestial navigation of birds and an eminent authority on European bird migration, has joined Dr. William J. Hamilton III on this work.

In addition to the above, several continuing grants from the National Science Foundation covered other research activities during the year. These include two grants to the Entomology Department for curatorial work and a modernization of facilities, support for Dr. Ross' studies of the Insect Order Embioptera (web spinners), and a grant to the Geology Department for a study of diatoms of the late Tertiary of California. Also, the State of California, through its Division of Fish and Game, continued its support of the Academy's Sardine Research Program involving behavioral studies.

These grants make it possible for the Academy to broaden its basic research program, and extend it into the field of behavior as well as in the areas of systematics and taxonomy.

LIBRARY

Under the direction of Miss Veronica J. Sexton, the Academy's J. W. Mailliard, Jr., Memorial Library, operating in beautifully designed new quarters, added over 14,000 items during the year. Included among these acquisitions from private donors, as well as by the judicious use of available funds, are photostatic copies of letters written in 1853 by Dr. Henry Gibbons, one of the Academy's founders; an early Canadian flora *Canadensium Plantarum*, by Jacques Philippe Cornut, published in Paris in 1635; a 23-volume work entitled, *Etudes de Lépidopterologie Comparee*, published in Rennes between 1904 and 1925 and not to be seen in any other West Coast library; and a 15-volume *Encyclopedia of Science and Technology*, a valuable reference work. Many



The Lucie Stern Room in the J. W. Mailliard, Jr. Library will be the depository for the Academy's rare books and manuscripts.

other books, publications and scientific separates of great value to the Academy's research staff, as well as to other scientists, are also included in the list.

The special collection of Baja California literature received continued support from the Belvedere Scientific Fund. Among some forty items acquired were an early nineteenth century unsigned manuscript, *Experimentos, y Observaciones sobre las Serpientes en la California Hechas por el Padre Inamma Jesuita Aleman*; *Mappa Mondo o Vero Carta Generale del Globo Terrestre*, Naples, 1700; and the Spanish translation of Clavijero's *Historia de la Antiqua o Baja California*, translated from the Italian, by Nicolas Garcia San Vicente, Mexico, 1852.

Mention has already been made of the completion of the Lucie Stern Room, on the Library's mezzanine, for the storage and protection of rare books, maps and manuscripts. Several hundred volumes of considerable value have been placed in this room already, pending receipt of a collection of primary importance from the bequest of Edward E. Hills.

Apart from the Academy's staff members, the Library continued to serve other individuals, government agencies, business corporations and various institutions. Many items were on loan at the end of the year. Interlibrary loan requests are increasing, good evidence of the recognition of the Library's collection and its ability to further scientific research.

* * *

The growth and progress made this year by the Academy has been due entirely to the loyal and effective work performed by every member of the staff. The Director welcomes this opportunity to express appreciation, individually and collectively, for a good job done.

Robert C. Miller
Director

CALIFORNIA ACADEMY OF SCIENCES

STATEMENT OF INCOME AND EXPENSES FOR THE YEAR ENDED JUNE 30, 1961

INCOME:		
City and County of San Francisco for Operation of Steinhart Aquarium	$156,927.69	
Less Aquarium expenses	156,927.69	
Remainder		Nil
Endowment—Rentals from Commercial Building—net of $11,020.48 for depreciation, amortization of lease cost, and incidental expenses		98,971.52
Dues		25,696.00
City and County of San Francisco for support of Museum activities		74,908.53
Planetarium, less expenses of $69,131.77		7,894.78
Profit on sales of publications, booklets, postcards, and novelties, less costs of $31,340.45		25,170.48
Instrument shop, less expenses of $6,375.27		22,349.23
Vending machines		12,332.48
Television royalty		6,975.00
Donation		5,104.78
Miscellaneous		25,344.43
Total		304,747.23
EXPENSES:		
Scientific Departments		154,937.16
Museum and general		113,408.79
Administrative Salaries		32,037.00
Pacific Discovery, less income of $7,232.38		24,532.32
Interest		12,044.69
Other		26,972.97
Total		363,932.93
NET LOSS		$ 59,185.70

ACCOUNTANTS' OPINION

California Academy of Sciences:

We have examined the balance sheet of the California Academy of Sciences as of June 30, 1961 and the related statement of income and expenses for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances, except that it was not practicable to extend the examination of contributions beyond accounting for the receipts as recorded.

In our opinion, based on our examination, the accompanying balance sheet and statement of income and expenses present fairly the financial position of the Academy at June 30, 1961 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

HASKINS & SELLS

August 28, 1961

CALIFORNIA ACADEMY OF SCIENCES

BALANCE SHEET, JUNE 30, 1961

ASSETS		LIABILITIES	
GENERAL OPERATING FUND			
Cash	$ 16,855.72	Accounts payable (Note 2)	$ 390.00
Accounts receivable	11,082.64	Accrued interest on note payable of the capital fund	2,683.33
Inventory of books and postcards—At cost	10,067.58	Total	3,073.33
Unamortized portion of cost of acquiring lease on rental property (lease expires 1984)	15,922.50	General operating fund:	
		Balance, beginning of year	$ 50,855.11
		Transferred from special purpose funds	59,185.70
		Total	110,040.81
		Net loss for the year	59,185.70
		Balance, end of year	50,855.11
Total	$ 53,928.44	Total	$ 53,928.44
SPECIAL PURPOSE FUNDS (Restricted as to Use)			
Cash	$ 123,878.27	Special purpose funds:	
Security investments—At cost (quoted market value $284,264.91)	237,558.78	Research expeditions	$ 70,660.87
Accounts receivable	7,524.62	Entomology	67,802.75
Real estate (under sales option)	21,600.00	Botany	56,804.41
		Geology	31,771.84
		Astronomy	31,183.84
		Exhibition	24,181.84
		Construction	17,642.74
		Lectures	10,301.61
		All other	80,211.77
Total	$ 390,561.67	Total	$ 390,561.67
CAPITAL FUNDS			
Cash	$ 45,118.21	Note payable to Insurance Company, 5¾%—Due October 11, 1964, deed of trust given on rental property	$ 210,000.00
Security investments—At cost (quoted market value $163,919.88)	139,307.72	Capital funds	1,523,931.25
Rental property—net after depreciation of $503,930.71 (pledged as security for $210,000.00 note payable)	620,971.60		
Collections, library, and equipment	906,035.93		
Construction in progress	22,497.79		
Total	$1,733,931.25	Total	$1,733,931.25

NOTES: 1. Buildings located in Golden Gate Park carried on the books of the Academy at $2,341,206.44 are not shown above. Title to the buildings is vested in the City and County of San Francisco.

2. Telephone charges of $18,499.33 billed to the Academy by the Pacific Telephone & Telegraph Company have not been paid by the Academy and have not been reflected in the financial statements pending the result of a dispute between the telephone company and the City and County of San Francisco. It is not known at this time whether the Academy or the city will be liable if the charges are ultimately deemed proper.

GIFTS AND BEQUESTS

The activities of the California Academy of Sciences are supported to a substantial extent by gifts and bequests, or the income therefrom, received from friends who desire to stimulate science and education resulting from scientific endeavors. Such gifts and bequests are within the exemption provisions of Federal and State tax laws.

A bequest (contribution by will) may be made in the following form:

FORM OF BEQUEST

I give and bequeath to the California Academy of Sciences the sum of_____

dollars ($_____) to be applied to the use and benefit of the said Academy.

In case it is desired to specify the particular use to which the contribution is to be put, such use may be specified in place of the words "to be applied to the use and benefit of the said Academy" in the form given above.

In case it is desired to make the contribution to the Academy as a memorial, "In memory of_____" may be added to the form.

In all instances the gift should be to "California Academy of Sciences" in its full corporate name, even when specifying the particular use to which the gift or bequest is to be put.

Gifts and bequests for the Academy should be sent to the Treasurer, California Academy of Sciences, Golden Gate Park, San Francisco, California.

BARRETT G. HINDES
Treasurer